How Does Perceived Fairness Affect Fertility Intention? The Role of Social Comparison

Authors: Yang Zheshuai, Dai Siqi, Zhao Dan, Zhao Dan

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Abstract

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Objective: In recent years, continuously declining fertility rates signal that China's population problem is becoming increasingly severe. This study aims to investigate the factors influencing individuals' fertility intentions.

Methods: Based on 31,125 samples from three waves of the Chinese General Social Survey and a series of experimental studies, this paper reveals the causal relationship between perceived social fairness and individuals' fertility intentions, and further uncovers the underlying psychological mechanisms.

Results: This study finds that enhancing individuals' perceived social fairness can reduce upward social comparison, leading to decreased expected child-rearing costs, thereby increasing their fertility intentions. Finally, this study also investigates the moderating effect of social comparison direction (upward social comparison vs. downward social comparison) on the aforementioned effect.

Conclusion: Fairness and equality are central to common prosperity. This study employs a combined methodology of large-sample data modeling and experimental paradigms to investigate the impact of perceived social fairness on fertility intentions, and proposes corresponding policy recommendations based on the specific psychological mechanisms identified. This research holds significant theoretical value and practical implications for enhancing individuals' fertility intentions and effectively implementing fertility policies.

Full Text

How Does Perceived Social Fairness Affect Fertility Intention? The Role of Social Comparison

Yang Zheshuai[1], **Dai Siqi**[1], **Zhao Dan**[2*]
[1] School of Management, Zhejiang University, Hangzhou 310058, China
[2] School of Public Affairs, Xiamen University, Xiamen 361005, China

Abstract

[**Objective**] The record-low fertility rate in recent years signals that China's population problem is becoming increasingly severe. This study aims to explore the factors influencing individuals' fertility intentions. [**Methods**] Based on 31,125 samples from three waves of the Chinese General Social Survey and a series of experimental studies, this research reveals the causal relationship between perceived social fairness and fertility intention and further uncovers the underlying psychological mechanisms. [**Results**] The findings show that enhancing individuals' perceived social fairness can reduce upward social comparison, lower anticipated childbearing costs, and consequently increase fertility intention. Finally, this study also examines the moderating effect of social comparison direction (upward vs. downward social comparison) on the aforementioned effect. [**Conclusions**] "Fairness" and "equality" are core tenets of common prosperity. By combining large-sample data modeling with experimental paradigms, this research investigates the impact of perceived social fairness on fertility intention and proposes corresponding policy recommendations based on specific psychological mechanisms, offering important theoretical value and practical significance for enhancing individuals' fertility intentions and effectively implementing fertility policies.

Keywords: perceived fairness, fertility intention, social comparison, fertility policy
Classification Codes: F713.55; C934; C91.6

The seventh national population census revealed that China's total fertility rate in 2020 was 1.3, a level classified by the United Nations as "lowest-low fertility" (Lin & Xie, 2019). Persistently low fertility rates will exacerbate population aging and hinder China's socio-economic development (Xing et al., 2019). Therefore, population development is a fundamental, comprehensive, and strategic issue concerning national prosperity and people's well-being (Research Group of the Development Research Center of the State Council et al., 2022).

Numerous factors influence fertility intentions. Previous research has identified many physiological, economic, cultural, institutional, and religious factors (Wu, 2020; Miller et al., 2010). However, prior studies have not examined the causal relationship between perceived social fairness and fertility intention, nor have they deeply explained the psychological mechanisms through which fairness perception affects fertility intention. Perceived social fairness refers to individuals'

overall perception and judgment of social fairness—namely, their assessment of whether society conforms to "what it ought to be" (Hu et al., 2016). Citizens' perceived social fairness is an important goal of China's socialist economic development and a crucial component in the process of achieving common prosperity (Feng & Su, 2021). Research has found that when individuals' perceived unfairness increases, so does their tendency for social comparison. To determine their position in society, individuals pay more attention to wealthier people and frequently compare themselves with those who are richer than themselves, increasing the frequency of upward social comparison (Cheung & Lucas, 2016).

This upward social comparison leads people to perceive higher living and childrearing costs (Gerber et al., 2018). Since having multiple children is a long-term, high-investment decision, those in relatively disadvantaged positions cannot bridge the gap with wealthy people in the short term (Smith, 2000), which consequently reduces fertility intention. Therefore, this study proposes that enhanced perceived social fairness can reduce social comparison and thereby increase individuals' fertility intention.

This paper first uses a large sample to ensure external validity and then employs a series of experiments with random assignment and strictly controlled environments to ensure internal validity. Study 1 uses large-sample data modeling to demonstrate the correlation between perceived social fairness and fertility intention. Subsequently, three experimental studies verify the causal relationship between perceived social fairness and fertility intention and the psychological mechanism of social comparison. Next, we first review the relevant literature.

1.1 Factors Influencing Fertility Intention

Since American scholar George Gallup first used the concept of "ideal number of children" in a 1936 poll on ideal family size, the concept of fertility intention has been widely applied in fertility research (Trent, 1980). Miller et al. (2010) argue that fertility intention is an intermediate state in the transition from fertility motivation to fertility behavior and is significantly positively correlated with fertility behavior, serving as a stable predictor of individuals' fertility behavior (Schoen et al., 1999). Therefore, exploring the factors influencing individuals' fertility intentions and enhancing them is crucial for promoting actual fertility behavior.

Previous research on factors influencing fertility intention can be summarized from three theoretical perspectives. The first is the biodemographic perspective. Biodemographic scholars believe that human fertility behavior is genetically controlled (Rodgers et al., 2001), and demographic factors such as childbearing age affect people's fertility intentions (Gray et al., 2013). The second is the structural approach, which focuses on how social structural factors such as economic development, political systems, culture, and religion influence fertility intentions (Chen & Wang, 2021; Zhang et al., 2019). Regarding economic factors, a series of studies have confirmed that deteriorating economic conditions, insuffi-

cient income, housing shortages, and unemployment all affect people's fertility intentions (European Commission, 2005).

The third is the social-psychological perspective. Psychological research on fertility intention has developed three relatively mature explanatory frameworks: the theory of conjunctural action, the Traits-Desires-Intentions-Behavior Model, and the theory of planned behavior. The theory of conjunctural action posits that fertility intentions are unconsciously formed under the subtle influence of many external environmental factors (Balbo et al., 2013). The Traits-Desires-Intentions-Behavior Model views the entire fertility behavior as a complex decision-making process (Miller et al., 2010). The theory of planned behavior treats fertility decision-making as a planned, rational behavior, arguing that individuals' fertility intentions depend on three factors: cost-benefit analysis, social norms, and personal control (Ajzen & Klobas, 2013).

In terms of content, many studies in the above three perspectives have examined the impact of economic factors on fertility intention, but most have focused on the relationship between absolute economic development and individual fertility intention. For example, overall economic development reduces fertility intention, and personal resource scarcity also leads to lower fertility intention (Rayhan et al., 2018; Zhang et al., 2021). However, very few studies have examined how individuals' relative perception of economic fairness affects fertility intention, and no research has systematically revealed the causal relationship between fairness perception and fertility intention.

1.2 Perceived Social Fairness and Social Comparison

"Fairness" and "equality" are core to common prosperity, and enhancing people's sense of social fairness is an important goal in achieving common prosperity (Yu & Ren, 2021). Academic research on perceived social fairness first emerged in organizational behavior studies, with a series of studies examining the relationship between fairness perception and individual goal setting and work performance. For instance, scholars have found that when employees perceive unfairness, their goal achievement rates decrease and their work performance declines significantly (Austin & Walster, 1974). In recent years, scholars have expanded fairness perception research beyond organizational contexts to examine its effects on other individual behaviors. For example, Chen and Zhang (2006) studied the impact of perceived social fairness on citizens' tax-paying behavior, finding that perceived fairness can increase lawful tax payment. Yang and Hu (2018) explored the mechanism through which perceived social fairness influences pro-environmental behavior, discovering that it significantly increases people's environmental protection behavior.

Furthermore, research has found that fairness perception can affect the frequency and tendency of social comparison (Newman et al., 2015). Festinger (1954) first proposed the concept of social comparison, which refers to the process by which individuals use others as a yardstick for self-evaluation, helping

them understand their current situation more accurately. Social comparison can be divided into upward social comparison (comparing with those better off) and downward social comparison (comparing with those worse off) (Buunk et al., 1990). Cheung and Lucas (2016) confirmed the causal relationship between inequality and more frequent upward comparison. Similarly, Schor (1998) found that perceived inequality leads people to engage in more frequent upward social comparison because the perception of inequality makes people pay more attention to particularly wealthy individuals, causing them to compare themselves frequently with the rich and increasing the frequency of upward social comparison.

From the original motivation for social comparison, individuals primarily compare themselves with others to obtain information for more accurate assessment of their abilities and social status (Gilbert et al., 1995). When people perceive relative unfairness in society, they engage in more frequent upward social comparison to continuously obtain information to determine their position. When people perceive relative fairness, the status gap between themselves and others is not as large and remains relatively stable, thus reducing the need for frequent social comparison to determine one's position (Goya-Tocchetto & Payne, 2022). Having multiple children is a long-term, high-investment decision, and those in relatively disadvantaged positions cannot bridge the gap with wealthy people in the short term. In such situations where the gap is difficult to change, upward social comparison has negative effects (Smith, 2000), thereby reducing people's fertility intention. For example, during comparison, individuals may realize their economic situation is inferior to that of colleagues, friends, or neighbors. When considering whether to have more children, this comparison leads individuals to doubt their ability to provide quality growth environments and educational resources like other parents. Conversely, when perceived social fairness is high, the social status gap is not as large and remains relatively stable, so individuals are less likely to engage in frequent social comparison when considering having more children, and thus their fertility intention is not affected. Therefore, this study proposes the following two hypotheses:

H1: Perceived social fairness has a positive effect on individuals' fertility intention; perceived fairness can increase fertility intention.

H2: Social comparison mediates the effect of perceived social fairness on fertility intention.

As mentioned above, social comparison can be divided into upward and downward social comparison. A series of studies have found that people typically compare themselves with those who have better abilities (Gruder, 1977), which aligns with the earlier point that people engage in more frequent upward social comparison when they perceive unfairness.

The direction of social comparison affects people's perception of being relatively worse or better, thereby influencing their behavior (Schlosser & Levy, 2016). Upward comparison leads to negative self-evaluation and subsequent self-doubt

(Midgley et al., 2021). In fertility decision-making, having multiple children is a long-term, high-investment decision, and those in relatively disadvantaged positions cannot bridge the gap with wealthy people in the short term. This upward comparison in a difficult-to-change situation has negative effects (Smith, 2000). That is, when individuals perceive social unfairness and engage in upward social comparison, they feel that childbearing costs increase. This long-term, high-investment gap cannot be changed in a short time, causing individuals to feel that self-improvement is very difficult and leading them to reduce current living costs. When unable to provide conditions like wealthy families, they choose to have fewer children. However, if individuals perceive social unfairness but engage in downward social comparison, they possess relatively superior conditions and do not feel an excessive burden from childbearing costs, so their fertility intention is not affected. In other words, if we artificially manipulate individuals' social comparison direction, we can likely weaken the effect of perceived social fairness on fertility intention. To further verify that upward social comparison indeed plays a mediating role in the effect of fairness perception on fertility intention, we adopted a moderation-of-process design to test the psychological mechanism of social comparison (Spencer et al., 2005). Therefore, this study proposes Hypothesis 3 to further examine the psychological mechanism of social comparison:

H3: The direction of social comparison moderates the effect of perceived social fairness on fertility intention. Specifically, when individuals engage in upward social comparison, higher perceived social fairness leads to higher fertility intention; when individuals engage in downward social comparison, the level of perceived social fairness has no significant effect on fertility intention.

2 Study 1: Analysis of CGSS Large-Sample Survey Data

Study 1 uses data from the 2013, 2015, and 2017 waves of the Chinese General Social Survey (CGSS2013, CGSS2015, and CGSS2017). The purpose of Study 1 is to use the latest three waves of CGSS data to test the correlation between perceived social fairness and fertility intention, ensuring the external validity of our conclusions.

2.1 Data Source and Selection

The CGSS data used in this study covers urban and rural areas in 31 provinces (municipalities and autonomous regions) in China, totaling 34,988 valid sample units. Based on the variables required for this study, we excluded respondents who answered "uncertain," "don't know," or "refuse to answer" for any relevant items, as well as those with incomplete responses. The final valid sample size for this study was 31,125, including 10,020 from CGSS2013, 9,812 from CGSS2015, and 11,293 from CGSS2017. The sample comprised 48.5% males and 51.5% females, with a mean age of 50.09 years (SD = 16.40).

2.2 Variables

2.2.1 Dependent Variable The dependent variable in this study is individuals' fertility intention. Ideal number of children is an important measure of fertility intention (Jia & Luo, 2018). This study selected the item "If there were no policy restrictions, how many children would you like to have?" from the questionnaire to represent fertility intention. The results showed that 16.8% of respondents desired three or more children, 63.0% desired two children, and 20.2% desired one child or fewer.

2.2.2 Independent Variable The independent variable is perceived social fairness, focusing on individuals' overall feeling about whether society is fair. The measurement item in the CGSS questionnaire was: "Overall, do you think today's society is fair?" Respondents rated their perception on a five-point scale (1 = completely unfair, 5 = completely fair).

2.2.3 Control Variables Existing research has confirmed that personal factors such as gender, age, and marital status significantly affect fertility intention (Lu et al., 2018). In addition, socioeconomic status (SES) also has a significant impact. SES is a comprehensive measure of an individual's economic and social position relative to others, based on income, education, and occupation, typically including three aspects: education level, income level, and social class (Hu & Lin, 2020). To control for the effects of these factors on fertility intention, this study selected six variables from the questionnaire data as control variables: gender, age, marital status, education level, income level, and subjective social class. Additionally, to exclude time effects, year was also included as a control variable.

We divided age into three categories: "pre-childbearing age (under 22), childbearing age (22-45), and post-childbearing age (over 45)," and converted age into two dummy variables using "childbearing age" as the reference. Based on CGSS data and previous research, we categorized marital status into four situations: "unmarried, cohabiting, married with spouse, and separated/not divorced/divorced/widowed," and converted marital status into three dummy variables using "unmarried" as the reference. Year was converted into two dummy variables using "2017" as the reference. Education level was divided into seven categories: "no education, primary school/private school, junior high school, vocational/regular high school/technical secondary school/technical school, junior college, bachelor's degree, and graduate degree or above," and was coded from 1 to 7. Income level was obtained from the questionnaire item "What was your total personal income last year?" Following previous research methods for handling income variables, we used the logarithm of income in the model. Subjective social class was measured by a 1-10 ladder scale from the questionnaire, where respondents answered "Overall, in today's society, which level do you think you are in?" with "10" representing the top level and "1" representing the bottom level, and the variable was coded from 1 to 10 according to respondents'

answers.

Descriptive statistics for all variables are shown in Table 1 .

2.2.4 Research Strategy

This study used multiple linear regression models to analyze the variables. The model formulas were:

Model 1: Y = β_0 + β_1*Fairness Perception +

Model 2: Y = β_0' + β_1'*Fairness Perception* + β_2Education Level + β_3*Income Level* + β_4Social Class + β_5*Gender* + (β_{61}Pre-childbearing Age + β_{62}*Post-childbearing Age)* + (β_{71}Cohabiting + β_{72}*Married with Spouse* + β_{73}Separated/Divorced/Widowed) + (β_{81}*2015* + β_{82}2013) + '

Where Y is the dependent variable fertility intention; β_1 and β_1' are the regression coefficients for the independent variable fairness perception in the two models; β_2-β_8 are the regression coefficients for each control variable in Model 2; β_0 and β_0' are the constant terms in the two regression models; and and ' are random error terms. This study primarily examined the direction and significance of regression coefficients β_1 and β_1'.

2.3 Results and Discussion

The results of the multiple linear regression analysis are shown in Table 2 . In Model 1, perceived social fairness had a significant positive effect on fertility intention, meaning that fertility intention increased as perceived social fairness strengthened.

In Model 2, after controlling for seven variables—gender, age, marital status, education level, income level, subjective social class, and year—perceived social fairness still had a significant positive effect on fertility intention. Additionally, respondents' gender significantly affected their fertility intention, with women's fertility intention significantly lower than men's. Respondents' age also affected their fertility intention: holding other conditions constant, individuals' fertility intention before childbearing age was significantly lower than during childbearing age, but fertility intention after childbearing age was significantly higher than during childbearing age. Marital status also had some effect: compared with unmarried groups, cohabiting and married groups, and even separated/divorced/widowed groups, all had significantly higher fertility intentions.

Regarding socioeconomic status, groups with higher education levels tended to have fewer children. Additionally, as social class increased, individuals tended to have more children. However, income level had a significant negative effect on fertility intention—higher income levels corresponded to lower fertility intention. Finally, year had no significant effect on fertility intention, ruling out potential time-related confounds.

Considering that the maximum ideal number of children in the sample was 29, which is unrealistic, we excluded 286 outlier samples with ideal numbers above 5 (the sample mean plus 3 standard deviations was 5.01). Regression analysis on the remaining 30,839 samples using the same model (Model 2) showed that the effect of perceived social fairness on fertility intention remained positive and significant ($b = 0.040$, $SE = 0.004$, $p < 0.001$).

In summary, perceived social fairness has a significant positive effect on fertility intention: as individuals' perceived social fairness increases, their fertility intention also increases. However, Study 1 only explored the correlation between perceived social fairness and fertility intention using secondary data and cannot demonstrate a causal relationship. Therefore, we further investigate the causal relationship and psychological mechanisms between perceived social fairness and fertility intention through experiments in subsequent studies.

3 Study 2: The Causal Relationship Between Perceived Social Fairness and Fertility Intention

Study 2 used a randomized experiment to verify the causal relationship between perceived social fairness and fertility intention. We first manipulated participants' perceived social fairness and then measured their fertility intention.

3.1 Method

3.1.1 Participants and Experimental Design This study used perceived social fairness as the independent variable and fertility intention as the dependent variable, adopting a single-factor two-level (perceived social fairness: fair vs. unfair) between-subjects design. All participants were randomly assigned to one of the two groups. The experimental questionnaire was distributed through Wenjuanxing's sample service (participants received compensation). A total of 415 samples were collected, including 44.1% females; mean age was 30.97 years ($SD = 8.47$); 81% had bachelor's degrees or higher; and average annual income was 153,600 yuan ($SD = 158{,}500$). Before data collection began, all experimental procedures, measurements, and planned sample sizes were pre-registered on the third-party academic platform aspredicted.org. The pre-registration report can be found at https://aspredicted.org/blind.php?x=/X8V_{T2S}. Pre-registration effectively ensures the objectivity and authenticity of experimental data (Moore, 2016).

3.1.2 Experimental Materials and Procedure First, referencing Hu et al.'s (2016) manipulation method for perceived social fairness, we adapted reports from authoritative domestic media such as *Sina Finance*, *Sohu News*, and *People's Daily* about China's economic development and wealth gap to create manipulation materials for two scenarios: economic fairness and economic unfairness. The material manipulating perceived fairness was titled "Chinese Society Gradually Achieves Income Fairness, Wealth Gap Continues to Nar-

row," while the material manipulating perceived unfairness was titled "Chinese Society Calls for Income Fairness, Wealth Gap Continues to Widen." At the beginning of the experiment, all participants read one of the two manipulation materials.

To test whether the manipulation of perceived social fairness was successful, participants answered: "Overall, do you think Chinese society is fair? (1 = very unfair; 7 = very fair)." To measure fertility intention, we used the measurement question from the CGSS questionnaire, asking participants: "If there were no policy restrictions, how many children would you like to have in total? {___}" To exclude potential interference from the manipulation materials, we measured their readability (1 = cannot understand at all; 7 = can completely understand). Finally, participants answered basic demographic questions.

3.2 Results

3.2.1 Manipulation Check for Perceived Social Fairness Before testing our hypotheses, we needed to confirm that the manipulation materials successfully primed perceived social fairness. A one-way ANOVA with perceived social fairness as the dependent variable showed that participants in the fairness group indeed perceived society as more fair (M_{fair} = 4.55, SD = 1.39; M_{unfair} = 4.01, SD = 1.41; F(1,413) = 15.66, p < 0.001, ^{2} = 0.037), indicating successful manipulation. Additionally, a one-way ANOVA with readability as the dependent variable found no significant difference in readability between the two materials (M_{fair} = 5.76, SD = 1.05; M_{unfair} = 5.85, SD = 1.01; F(1,413) = 0.82, p = 0.365), suggesting that readability did not affect fertility intention results.

3.2.2 Effect of Perceived Social Fairness on Fertility Intention Based on the successful manipulation of perceived social fairness, we conducted a one-way ANOVA on fertility intention between the two groups. The results showed that the fairness group had significantly higher fertility intention than the unfairness group (M_{fair} = 1.92, SD = 0.70; M_{unfair} = 1.73, SD = 0.64; F(1,413) = 8.34, p = 0.004, ^{2} = 0.020; see Figure 1 [Figure 1: see original paper]). That is, participants who perceived society as fair were willing to have more children than those who perceived it as unfair, demonstrating a significant positive effect of perceived social fairness on fertility intention.

3.3 Discussion

Study 2 used an experimental method to investigate the effect of perceived social fairness on fertility intention by priming different levels of perceived fairness through situational materials. The results showed that higher perceived social fairness leads to stronger fertility intention. This occurs because perceived unfairness increases people's tendency for social comparison (Cheung & Lucas, 2016). When feeling that society is unfair, people compare themselves with others more frequently in daily life, and the results of these comparisons affect

their decisions to a greater extent. For example, when perceiving unfairness, individuals may realize their economic situation is inferior to colleagues, friends, or neighbors. When considering whether to have more children, this comparison leads them to doubt their ability to provide quality growth environments and educational resources like other parents and to give their children a head start. During this social comparison process, individuals' fertility intention decreases. Conversely, when perceived social fairness is high, individuals are less likely to engage in excessive social comparison when considering having more children, so their fertility intention is not affected. To further explore the mechanism through which perceived social fairness affects fertility intention, Study 3 introduces social comparison as a mediating variable and directly measures it to test the mediating role of social comparison in the pathway from perceived social fairness to fertility intention.

4 Study 3: The Mediating Role of Social Comparison

Study 3 directly measured people's social comparison tendency to explore the psychological mechanism through which perceived social fairness affects fertility intention.

4.1 Method

4.1.1 Participants and Experimental Design This study also adopted a single-factor two-level (perceived social fairness: fair vs. unfair) between-subjects design, randomly assigning all participants to one of two groups to prime different levels of perceived fairness through situational materials. The experimental questionnaire was distributed through Wenjuanxing's sample service (participants received compensation). A total of 417 questionnaires were collected, including 96.9% females; mean age was 28.52 years (SD = 6.91); 75.5% had bachelor's degrees or higher; and average annual income was 220,700 yuan (SD = 177,500). The pre-registration report for this experiment can be found at https://aspredicted.org/blind.php?x=/CWD_{Q4V}.

4.1.2 Experimental Materials and Procedure The situational priming materials used in this study were identical to those used in Study 2. To complete the manipulation of perceived social fairness, participants were first randomly assigned to read one of the two materials. They then answered the manipulation check item: "Overall, do you think Chinese society is fair? (1 = very unfair, 7 = very fair)." To measure social comparison tendency, participants answered the social comparison scale: "In China's current social environment, when planning whether to have a second child or more children, to what extent do you need to consider the following factors: (1) comparing your income gap with others around you; (2) compared with wealthy people, considering whether you can purchase quality educational resources for your child(ren) (such as attending good private schools, enrolling in various extracurricular tutoring classes, etc.); (3) compared with wealthy people, considering whether your family's conditions

can give your child(ren) a head start (1 = not at all needed, 7 = very much needed; Richins, 1991; Cronbach's $\alpha = 0.63$)." Subsequently, participants answered the fertility intention measurement: "If there were no policy restrictions, how many children would you like to have in total? {___}" Finally, we collected participants' demographic variables.

4.2 Results

4.2.1 Manipulation Check for Perceived Social Fairness We conducted a one-way ANOVA on perceived social fairness between the two groups. The results showed that the fairness group had significantly higher perceived social fairness than the unfairness group (M_{fair} = 4.51, SD = 1.34; M_{unfair} = 4.22, SD = 1.30; F(1,415) = 5.21, p = 0.023, ^{2} = 0.012). Therefore, the manipulation of perceived social fairness was successful.

4.2.2 Effect of Perceived Social Fairness on Fertility Intention We first conducted a one-way ANOVA on fertility intention between the two groups. The results showed that the fairness group had significantly higher fertility intention than the unfairness group (M_{fair} = 1.79, SD = 0.65; M_{unfair} = 1.65, SD = 0.66; F(1,415) = 4.29, p = 0.039, ^{2} = 0.010). That is, increasing perceived social fairness significantly enhanced individuals' fertility intention.

4.2.3 Mediation Analysis of Social Comparison To further verify the mediating role of social comparison, this study first conducted a one-way ANOVA on social comparison tendency between the two groups. The results showed that participants in the fairness group had lower social comparison tendency than those in the unfairness group (M_{fair} = 5.21, SD = 1.03; M_{unfair} = 5.44, SD = 0.87; F(1,415) = 5.63, p = 0.018, ^{2} = 0.014).

Next, using perceived social fairness as the independent variable (0 = unfair, 1 = fair), fertility intention as the dependent variable, and social comparison as the mediator, we further tested this mediating effect using the Bootstrap method (Hayes, 2017; Model 4, 5,000 resamples, 95% confidence interval). As shown in Figure 2 [Figure 2: see original paper], the mediating effect of social comparison was significant (indirect effect = 0.016, SE = 0.010, 95% CI [0.0008, 0.0381]). Additionally, the total effect of perceived social fairness on fertility intention was also significant (total effect = 0.133, SE = 0.064, 95% CI [0.0069, 0.2597]). After including the mediator social comparison, the direct effect of perceived social fairness on fertility intention became marginally significant (b = 0.118, SE = 0.065, p = 0.069, 95% CI [–0.0091, 0.2445]). The statistical results of the mediation model indicate that the effect of perceived fairness on fertility intention is caused by people's social comparison tendency. That is, when people perceive social unfairness, they are more inclined to compare themselves with others, leading to decreased fertility intention.

4.3 Discussion

Building on Study 2, Study 3 used an experimental method to further explore the psychological mechanism through which perceived social fairness affects fertility intention. The results found that when individuals perceive unfairness, they tend to engage in social comparison, which reduces fertility intention. Based on our direct measurement of social comparison, we can see that when individuals perceive unfairness, they are more inclined to engage in upward social comparison. In this situation, individuals feel they cannot afford the pressure of raising multiple children, thereby reducing their fertility intention.

From this, we can reasonably infer that upward social comparison under perceived unfairness reduces individuals' fertility intention. However, downward social comparison—comparing with those worse off—does not reduce fertility intention. That is, the direction of social comparison moderates the effect of perceived unfairness on fertility intention. Study 4 directly manipulates the direction of social comparison to further verify the psychological mechanism through which perceived social fairness affects fertility intention.

5 Study 4: The Moderating Role of Social Comparison Direction

Study 4 used direct manipulation of social comparison direction to verify the psychological mechanism through which perceived social fairness affects fertility intention.

5.1 Method

5.1.1 Participants and Experimental Design Study 4 used direct manipulation of social comparison direction to verify the psychological mechanism. The experiment adopted a single-factor three-level (social comparison direction: upward comparison vs. downward comparison vs. control group) between-subjects design, randomly assigning participants to three groups to prime perceived unfairness under different economic conditions through a recall method. The experimental questionnaire was distributed through Wenjuanxing's sample service (participants received compensation). A total of 604 questionnaires were collected, including 54.8% females; mean age was 29.66 years (SD = 8.28); 80.6% had bachelor's degrees or higher; and average annual income was 153,000 yuan (SD = 165,300). The pre-registration report for this experiment can be found at https://aspredicted.org/blind.php?x=/LLJ_{X88}.

5.1.2 Experimental Materials and Procedure To ensure internal validity, Study 4 used a different method to manipulate participants' perceived unfairness. Referencing Xiao's (2018) experimental material design, participants in the upward comparison group recalled a friend whose family was much better off and wealthier than theirs; those in the downward comparison group recalled

a friend whose family was much worse off and poorer; and those in the control group recalled a friend with similar family conditions and wealth.

After participants wrote the corresponding descriptions as required, we measured their perceived fairness using the same item: "Overall, do you think Chinese society is fair? (1 = very unfair; 7 = very fair)." We then measured participants' fertility intention, again using ideal number of children as the core indicator. Finally, we collected participants' demographic variables.

5.2 Results

5.2.1 Manipulation Check for Perceived Social Fairness We conducted a one-way ANOVA on perceived social fairness among the three groups. The results showed significant differences among the three groups ($F(2,601) = 3.29$, $p = 0.038$, $^2 = 0.011$). Specifically, the upward comparison group's perceived fairness ($M = 3.91$, $SD = 1.46$) was significantly lower than the control group's ($M = 4.24$, $SD = 1.48$; $F(1,601) = 5.13$, $p = 0.024$, $^2 = 0.008$). The downward comparison group's perceived fairness ($M = 3.91$, $SD = 1.43$) was also significantly lower than the control group's ($M = 4.24$, $SD = 1.48$; $F(1,601) = 5.00$, $p = 0.026$, $^2 = 0.008$). There was no significant difference between the upward and downward comparison groups (M_{upward} = 3.91, SD = 1.46; M_{downward} = 3.91, SD = 1.43; $F(1,601) < 0.01$, $p = 0.987$). Therefore, the manipulation of social comparison direction was successful.

5.2.2 Effect of Perceived Social Fairness on Fertility Intention We then conducted a one-way ANOVA on fertility intention among the three groups. The results showed significant differences ($F(2,601) = 6.19$, $p = 0.002$, $^2 = 0.020$; see Figure 3 [Figure 3: see original paper]). Specifically, the upward comparison group's fertility intention ($M = 1.71$, $SD = 0.67$) was significantly lower than the downward comparison group's ($M = 1.99$, $SD = 1.22$; $F(1,601) = 9.26$, $p = 0.002$, $^2 = 0.015$) and the control group's ($M = 1.99$, $SD = 0.90$; $F(1,601) = 8.94$, $p = 0.003$, $^2 = 0.015$). Importantly, there was no significant difference between the downward comparison and control groups ($F(1,601) < 0.01$, $p = 0.967$). In other words, when individuals feel unfairness and engage in upward comparison, their fertility intention significantly decreases. However, downward social comparison has no effect on fertility intention, so even when the downward comparison group perceives some social unfairness, it does not affect their fertility intention. This study further demonstrates how social comparison as a psychological mechanism affects individuals' fertility intention.

6 General Discussion

Based on the latest three waves of CGSS data and a series of randomized experiments, this paper examined the relationship between perceived social fairness and fertility intention. The main conclusions are as follows: First, perceived social fairness has a positive effect on individuals' fertility intention; perceived

fairness can increase fertility intention. Second, social comparison mediates the effect of perceived social fairness on fertility intention. When individuals perceive unfairness, they engage in upward social comparison, which increases their perceived childbearing costs and consequently reduces fertility intention. Third, the direction of social comparison moderates the effect of perceived social fairness on fertility intention: only upward social comparison reduces fertility intention, while downward social comparison does not affect it.

6.1 Theoretical Contributions

This research makes clear theoretical contributions. First, persistently low fertility rates have become a global challenge, and how to increase fertility rates has become an important concern for scholars and governments worldwide (Song & Zheng, 2021; Goldstein et al., 2009). However, to our knowledge, previous research has mainly examined the relationship between absolute economic development level and fertility intention. For example, overall economic development reduces fertility intention, and personal resource scarcity also leads to lower fertility intention (Rayhan et al., 2018; Zhang et al., 2021). Yet, almost no research has examined how relative perceptions of economic fairness affect fertility intention, and no study has systematically revealed the causal relationship between fairness perception and fertility intention. This research combines large-sample survey data with experimental data to reveal that perceived social fairness can affect individuals' fertility intention through social comparison, providing important insights for fertility rate research and social fairness perception research and identifying an important social factor influencing fertility intention.

Second, "fairness" and "equality" are core to common prosperity, and enhancing people's sense of social fairness is an important goal in achieving common prosperity (Yu & Ren, 2021). The August 2021 meeting of the Central Financial and Economic Affairs Commission emphasized that one of the goals of common prosperity is to "promote social fairness and justice." Citizens' perceived social fairness is an important indicator and goal of China's socialist economic development and a crucial component in building common prosperity (Feng & Su, 2021). Current research on common prosperity focuses on elaborating its connotation and implementation paths (Liu et al., 2021), with few articles theoretically examining how common prosperity affects people's psychological activities and behavioral intentions. Therefore, this study's investigation of how perceived social fairness affects citizens' fertility intention has important theoretical value and practical significance for enriching the connotation of common prosperity, exploring its subsequent impacts, and enhancing fertility intention.

Third, this research introduces social comparison to explain how fairness perception affects fertility intention, further revealing the psychological mechanism. Social comparison is an important concept in psychological and sociological research. Previous studies have found that different directions of social comparison can affect various outcomes such as self-esteem, emotions, and prosocial motivation (Suls et al., 2002; Präg et al., 2014), but no research has found that

social comparison can affect fertility intention. This study uses both mediation (Study 3) and moderation (Study 4) approaches to demonstrate how upward social comparison affects individuals' fertility intention, revealing a new outcome variable of social comparison.

Finally, from the perspective of fertility research, Chinese scholars have pointed out that the field suffers from "relatively single research paradigms, with most studies limited to the family economics analysis framework" (Wu, 2020). Combining interdisciplinary research paradigms can promote theoretical development in fertility intention research. This study integrates large-sample data analysis with experimental research paradigms, using an interdisciplinary approach to first reveal the causal relationship between fairness perception and fertility intention, providing new research directions for fertility studies.

6.2 Practical Implications

Some scholars argue that current fertility policies emphasizing macro-level population goals overlook the main causes of low fertility and public needs, and thus may be ineffective (Zheng, 2021). For instance, some research directly points out that using financial subsidies to enhance fertility intention has very limited effects because such policies ignore the specific psychological mechanisms affecting fertility intention (Jang et al., 2017). This study clearly reveals the psychological mechanism through which perceived social fairness affects fertility intention. Based on this mechanism, we propose the following policy recommendations to promote perceived social fairness and enhance fertility intention:

First, address the root cause by promoting social fairness and reducing the wealth gap. As President Xi Jinping pointed out, "China must resolutely prevent polarization" (Xi, 2021). While maintaining high-speed economic growth, we must focus on secondary and tertiary income distribution, regulate excessively high incomes, and ultimately form an olive-shaped distribution structure with small ends and a large middle, fundamentally promoting social fairness and justice and enhancing people's sense of social fairness.

Second, target the psychological mechanism by focusing on public opinion guidance to reduce perceived unfairness. Many studies have shown that public opinion shaped by film, television, and media reports can affect people's psychology and behavior (Gong, 2014). Perceived unfairness does not completely equal objective unfairness, so reducing perceived unfairness can also start with public opinion guidance by reducing elements like "money worship" and "wealth flaunting" in film and television works and guiding people to establish healthy consumption and value concepts. Only by reducing perceived unfairness can we alleviate unnecessary parenting pressure and thereby enhance fertility intention.

Finally, expand the scope and duration of public education services to reduce child-rearing costs. Yang et al. (2021) argue that educational inequality leads to a compounding effect on education costs for families with children, directly suppressing the fertility intention of those who "dare not have children" and

reinforcing the childless decisions of those who "don't want children," thereby exacerbating China's population structure imbalance. Similarly, this study finds that one reason perceived unfairness affects fertility intention is that people feel the educational investment required in child-rearing costs is too high. Upward social comparison makes people feel unable to provide sufficiently good educational resources for their children like others. Therefore, reducing educational investment is an effective short-term means to enhance fertility intention. On one hand, we must "block" by continuing to implement the "double reduction" policy and strictly controlling non-compliant extracurricular tutoring classes. On the other hand, we must "unblock" by expanding the scope and duration of public education services and improving school teaching quality. Parents' market demand for their children to learn various skills and receive good education will not disappear because of the "double reduction" policy. To truly eliminate people's concerns about child-rearing costs, public education institutions need to create a good environment where children can receive quality educational opportunities in public institutions.

7 Conclusion

This paper uses a national survey dataset spanning five years with over 30,000 samples to explain the correlation between perceived social fairness and fertility intention, finding that higher perceived fairness corresponds to higher fertility intention. Subsequently, three experiments further verified the causal relationship between fairness perception and fertility intention and revealed that upward social comparison can explain the effect of fairness perception on fertility intention through mediation and moderation. While previous research has mostly focused on the impact of absolute economic development level on fertility intention, this study explores the effect of relative fairness perception from a different perspective, providing new insights for understanding continuously declining fertility rates and formulating corresponding pro-fertility policies based on psychological mechanisms.

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Note: Figure translations are in progress. See original paper for figures.